INDEX TO AUTHORS

A

ADOLPH, ALAN R. Thermal and spectral sensitivities of discrete slow potentials in *Limulus* eye, 584

AKIYAMA, TOYOHIRO. See WATANABE, OBARA, and AKIYAMA, 908

ALONSO, GUILLERMO, and WALSER, MACKENZIE. ATP splitting and calcium binding by brain microsomes measured with a rapid perfusion method, 111

ALPERN, MATHEW, and TORII, SHUKO. The luminosity curve of the deuteranomalous fovea, 738

— and —. The luminosity curve of the protanomalous fovea, 717

ALVING, BARBARA O. See CARPENTER and ALVING, 1

ANDREOLI, THOMAS E., and MONAHAN, MARCIA. The interaction of polyene antibiotics with thin lipid membranes, 300

B

BAILEY, LESLIE E., and DRESEL, PETER E. Correlation of contractile force with a calcium pool in the isolated cat heart, 969

BAUMANN, FRITZ. Slow and spike potentials recorded from retinula cells of the honeybee drone in response to light, 855

BEAN, ROSS C., SHEPHERD, WILLIAM C., and CHAN, HAKCHILL. Permeability of lipid bilayer membranes to organic solutes, 495

BEAUGÉ, L. A., and SJODIN, R. A. The dual effect of lithium ions on sodium efflux in skeletal muscle, 408

—. See SJODIN and BEAUGÉ, 389

BENAMY, DANIEL A. See MORLOCK, BENAMY, and GRUNDFEST, 22

BENEDICT, B. See BROKAW and BENEDICT, 283

BERGER, EUGENE Y., PECIKYAN, F. RENÉ, and KANZAKI, GRACE. Anesthetic gases and water structure. The effect of xenon on tritiated water flux across the gut, 876

BERNARD, RUDY A., and HALPERN, BRUCE P. Taste changes in vitamin A deficiency, 444

BIRKS, R. I., BURSTYN, P. G. R., and FIRTH, D. R. The form of sodium-calcium competition at the frog myoneural junction, 887

BLANK, MARTIN. Monolayer and interfacial permeation, 191 s

BRADY, A. J. See LANGER and BRADY, 682

BRIGGS, F. NORMAN. See FUCHS, GERTZ, and BRIGGS, 955

BRINLEY, F. J., JR. Intracellular sodium concentration and activity coefficient in single barnacle muscle fibers, 984

— and MULLINS, L. J. Sodium fluxes in internally dialyzed squid axons, 181

BROKAW, C. J., and BENEDICT, B. Mechanochemical coupling in flagella. II. Effects of viscosity and thiourea on metabolism and motility of *Ciona* spermatozoa, 283

BURSTYN, P. G. R. See BIRKS, BURSTYN, and FIRTH, 887

C

CANESSA-FISCHER, MITZY. See ROJAS and CANESSA-FISCHER, 240

CAPUTO, CARLO. Volume and twitch tension changes in single muscle fibers in hypertonic solutions, 793

CARPENTER, DAVID O., and ALVING, BARBARA O. A contribution of an electrogenic Na^+ pump to membrane potential in *Aplysia* neurons, 1

CARVALHO, ARSELIO P. Calcium-binding properties of sarcoplasmic reticulum as influenced by ATP, caffeine, quinine, and local anesthetics, 622

CASS, ALBERT. See FINKELSTEIN and CASS, 145 s

CHAN, HAKCHILL. See BEAN, SHEPHERD, and CHAN, 495

CLAUSEN, T. See GIRARDIER, SEYDOUX, and CLAUSEN, 925

CROFFORD, O. B. See PARK, CROFFORD, AND KONO, 296 s

INDEX TO AUTHORS

A

ADOLPH, ALAN R. Thermal and spectral sensitivities of discrete slow potentials in *Limulus* eye, 584

AKIYAMA, TOYOHIRO. See WATANABE, OBARA, and AKIYAMA, 908

ALONSO, GUILLERMO, and WALSER, MACKENZIE. ATP splitting and calcium binding by brain microsomes measured with a rapid perfusion method, 111

ALPERN, MATHEW, and TORII, SHUKO. The luminosity curve of the deuteranomalous fovea, 738

— and —. The luminosity curve of the protanomalous fovea, 717

ALVING, BARBARA O. See CARPENTER and ALVING, 1

ANDREOLI, THOMAS E., and MONAHAN, MARCIA. The interaction of polyene antibiotics with thin lipid membranes, 300

B

BAILEY, LESLIE E., and DRESEL, PETER E. Correlation of contractile force with a calcium pool in the isolated cat heart, 969

BAUMANN, FRITZ. Slow and spike potentials recorded from retinula cells of the honeybee drone in response to light, 855

BEAN, ROSS C., SHEPHERD, WILLIAM C., and CHAN, HAKCHILL. Permeability of lipid bilayer membranes to organic solutes, 495

BEAUGÉ, L. A., and SJODIN, R. A. The dual effect of lithium ions on sodium efflux in skeletal muscle, 408

—. See SJODIN and BEAUGÉ, 389

BENAMY, DANIEL A. See MORLOCK, BENAMY, and GRUNDFEST, 22

BENEDICT, B. See BROKAW and BENEDICT, 283

BERGER, EUGENE Y., PECIKYAN, F. RENÉ, and KANZAKI, GRACE. Anesthetic gases and water structure. The effect of xenon on tritiated water flux across the gut, 876

BERNARD, RUDY A., and HALPERN, BRUCE P. Taste changes in vitamin A deficiency, 444

BIRKS, R. I., BURSTYN, P. G. R., and FIRTH, D. R. The form of sodium-calcium competition at the frog myoneural junction, 887

BLANK, MARTIN. Monolayer and interfacial permeation, 191 s

BRADY, A. J. See LANGER and BRADY, 682

BRIGGS, F. NORMAN. See FUCHS, GERTZ, and BRIGGS, 955

BRINLEY, F. J., JR. Intracellular sodium concentration and activity coefficient in single barnacle muscle fibers, 984

— and MULLINS, L. J. Sodium fluxes in internally dialyzed squid axons, 181

BROKAW, C. J., and BENEDICT, B. Mechanochemical coupling in flagella. II. Effects of viscosity and thiourea on metabolism and motility of *Ciona* spermatozoa, 283

BURSTYN, P. G. R. See BIRKS, BURSTYN, and FIRTH, 887

C

CANESSA-FISCHER, MITZY. See ROJAS and CANESSA-FISCHER, 240

CAPUTO, CARLO. Volume and twitch tension changes in single muscle fibers in hypertonic solutions, 793

CARPENTER, DAVID O., and ALVING, BARBARA O. A contribution of an electrogenic Na^+ pump to membrane potential in *Aplysia* neurons, 1

CARVALHO, ARSELIO P. Calcium-binding properties of sarcoplasmic reticulum as influenced by ATP, caffeine, quinine, and local anesthetics, 622

CASS, ALBERT. See FINKELSTEIN and CASS, 145 s

CHAN, HAKCHILL. See BEAN, SHEPHERD, and CHAN, 495

CLAUSEN, T. See GIRARDIER, SEYDOUX, and CLAUSEN, 925

CROFFORD, O. B. See PARK, CROFFORD, AND KONO, 296 s

D

DeHaan, Robert L., and Gottlieb, Sheldon H. The electrical activity of embryonic chick heart cells isolated in tissue culture singly or in interconnected cell sheets, 643

Dresel, Peter E. See Bailey and Dresel, 969

E

Eckert, Roger, and Sibaoka, Takao. The flash-triggering action potential of the luminescent dinoflagellate *Noctiluca*, 258

Eggena, Patrick, Schwartz, Irving L., and Walter, Roderich. A sensitive hydroosmotic toad bladder assay. Affinity and intrinsic activity of neurohypophyseal peptides, 465

F

Faust, Robert G., Leadbetter, Mary G., Plenge, Regina K., and McCaslin, Alston J. Active sugar transport by the small intestine. The effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on the preferential binding of D-glucose to Tris-disrupted brush borders, 482

Fenn, Wallace O., and Marquis, Robert E. Growth of *Streptococcus faecalis* under high hydrostatic pressure and high partial pressures of inert gases, 810

Finkelstein, Alan, and Cass, Albert. Permeability and electrical properties of thin lipid membranes, 145 s

Firth, D. R. See Birks, Burstyn, and Firth, 887

Fuchs, Franklin, Gertz, Edward W., and Briggs, F. Norman. The effect of quinidine on calcium accumulation by isolated sarcoplasmic reticulum of skeletal and cardiac muscle, 955

G

Gaffron, Hans. See Schmid and Gaffron, 212

Gainer, Harold. The role of calcium in excitation-contraction coupling of lobster muscle, 88

Gary-Bobo, C. M., and Solomon, A. K. Properties of hemoglobin solutions in red cells, 825

Gertz, Edward W. See Fuchs, Gertz, and Briggs, 955

Gibbs, C. L., and Vaughan, P. The effect of calcium depletion upon the tension-independent component of cardiac heat production, 532

Girardier, L., Seydoux, J., and Clausen, T. Membrane potential of brown adipose tissue. A suggested mechanism for the regulation of thermogenesis, 925

Goldsmith, Harry L. The microrheology of red blood cell suspensions, 5 s

Gottlieb, Sheldon H. See DeHaan and Gottlieb, 643

Grinnell, A. D. See Hagiwara, Gruener, Hayashi, Sakata, and Grinnell, 773

Gruener, R. See Hagiwara, Gruener, Hayashi, Sakata, and Grinnell, 773

Grundfest, Harry. See Morlock, Benamy, and Grundfest, 22

H

Hagiwara, S., Gruener, R., Hayashi, H., Sakata, H., and Grinnell, A. D. Effect of external and internal pH changes on K and Cl conductances in the muscle fiber membrane of a giant barnacle, 773

Halpern, Bruce P. See Bernard and Halpern, 444

Hayashi, H. See Hagiwara, Gruener, Hayashi, Sakata, and Grinnell, 773

Herz, R. See Weber and Herz, 750

Hoffman, Brian F. See Yeh and Hoffman, 666

K

Kanzaki, Grace. See Berger, Pecikyan, and Kanzaki, 876

Karnovsky, Morris J. The ultrastructural basis of transcapillary exchanges, 64 s

Kitasato, Hiroshi. The influence of H^+ on the membrane potential and ion fluxes of *Nitella*, 60

Kono, T. See Park, Crofford, and Kono, 296 s

Korn, Edward D. Structure and function of the plasma membrane. A biochemical perspective, 257 s

Kriebel, Mahlon E. Electrical characteristics of tunicate heart cell membranes and nexuses, 46

Kusano, Kiyoshi. Further study of the relationship between pre- and post-synaptic potentials in the squid giant synapse, 326

L

LANGER, G. A., and BRADY, A. J. The effects of temperature upon contraction and ionic exchange in rabbit ventricular myocardium. Relation to control of active state, 682

LEADBETTER, MARY G. See FAUST, LEADBETTER, PLENGE, and MCCASLIN, 482

M

MACKIE, G. O., and PASSANO, L. M. Epithelial conduction in hydromedusae, 600

MARQUIS, ROBERT E. See FENN and MARQUIS, 810

MCCASLIN, ALSTON J. See FAUST, LEADBETTER, PLENGE, and MCCASLIN, 482

MCLAUGHLIN, S. The activity coefficient of sodium in striated muscle fibers, 983

MILLER, I. R. Ion transport through monolayers and interfacial films, 209 s

MONAHAN, MARCIA. See ANDREOLI and MONAHAN, 300

MOORE, JOHN W. See NARAHASHI and MOORE, 553

MORITA, HIROMICHI, and SHIRAISHI, AKIO. Stimulation of the labellar sugar receptor of the fleshfly by mono- and disaccharides, 559

MORLOCK, NOEL L., BENAMY, DANIEL A., and GRUNDFEST, HARRY. Analysis of spike electrogenesis of eel electroplaques with phase plane and impedance measurements, 22

MOSES, ARNOLD M. See STREETEN and MOSES, 346

MULLINS, L. J. A single channel or a dual channel mechanism for nerve excitation, 550

—. Single or dual channel mechanisms. A further comment, 555

—. See BRINLEY and MULLINS, 181

MYSELS, KAROL J. Dynamic processes in soap films, 113 s

N

NARAHASHI, TOSHIO, and MOORE, JOHN W. A single or dual channel in nerve membranes? 553

NORTHROP, JOHN H. Appearance of virulent bacteriophages in lysogenic *E. coli* cultures after prolonged growth in the presence of triethylenemelamine, 136

O

OBARA, SHOSAKU. Effects of some organic cations on generator potential of crayfish stretch receptor, 363

—. See WATANABE, OBARA, and AKIYAMA, 908

P

PARDEE, ARTHUR B. Biochemical studies on active transport, 279 s

PARK, C. R., CROFFORD, O. B., and KONO, T. Mediated (nonactive) transport of glucose in mammalian cells and its regulation, 296 s

PASSANO, L. M. See MACKIE and PASSANO, 600

PECIKYAN, F. RENÉ. See BERGER, PECIKYAN, and KANZAKI, 876

PLENGE, REGINA K. See FAUST, LEADBETTER, PLENGE, and MCCASLIN, 482

R

RAND, R. P. The structure of a model membrane in relation to the viscoelastic properties of the red cell membrane, 173 s

RENKIN, EUGENE M. Transcapillary exchange in relation to capillary circulation, 96 s

RICH, G. T., SHA'AFI, R. I., ROMUALDEZ, A., and SOLOMON, A. K. Effect of osmolality on the hydraulic permeability coefficient of red cells, 941

ROJAS, EDUARDO, and CANESSA-FISCHER, MITZY. Sodium movements in perfused squid giant axons. Passive fluxes, 240

ROMUALDEZ, A. See RICH, SHA'AFI, ROMUALDEZ, and SOLOMON, 941

S

SAKATA, H. See HAGIWARA, GRUENER, HAYASHI, SAKATA, and GRINNELL, 773

SALTON, M. R. J. Lytic agents, cell permeability, and monolayer penetrability, 227 s

SCHMID, GEORG H., and GAFFRON, HANS. Photosynthetic units, 212

SCHWARTZ, IRVING L. See EGGENA, SCHWARTZ, and WALTER, 465

SEYDOUX, J. See GIRARDIER, SEYDOUX, and CLAUSEN, 925

SHA'AFI, R. I. See RICH, SHA'AFI, ROMUALDEZ, and SOLOMON, 941

SHEPHERD, WILLIAM C. See BEAN, SHEPHERD, and CHAN, 495

SHIRAISHI, AKIO. See MORITA and SHIRAISHI, 559
SIBAOKA, TAKAO. See ECKERT and SIBAOKA, 258
SJODIN, R. A., and BEAUGÉ, L. A. Strophanthidin-sensitive components of potassium and sodium movements in skeletal muscle as influenced by the internal sodium concentration, 389
— . See BEAUGÉ and SJODIN, 408
SLAYMAN, CAROLYN W. See SLAYMAN and SLAYMAN, 424
SLAYMAN, CLIFFORD L., and SLAYMAN, CAROLYN W. Net uptake of potassium in *Neurospora*. Exchange for sodium and hydrogen ions, 424
SOLOMON, A. K. See GARY-BOBO and SOLOMON, 825
—. See RICH, SHA'AFI, ROMUALDEZ, and SOLOMON, 941
STEINBACH, A. B. Alteration by Xylocaine (lidocaine) and its derivatives of the time course of the end plate potential, 144
—. A kinetic model for the action of Xylocaine on receptors for acetylcholine, 162
STREETEN, DAVID H. P., and MOSES, ARNOLD M. Action of cortisol on sodium transport in canine erythrocytes, 346

T

TIEN, H. TI. Black lipid membranes at bifaces. Formation characteristics, optical and some thermodynamic properties, 125 s
TORII, SHUKO. See ALPERN and TORII, 717, 738

V

VAUGHAN, P. See GIBBS and VAUGHAN, 532

W

WALSER, MACKENZIE. See ALONSO and WALSER, 111
WALTER, RODERICH. See EGGENA, SCHWARTZ, and WALTER, 465
WATANABE, AKIRA, OBARA, SHOSAKU, and AKIYAMA, TOYOHIRO. Inhibitory synapses on pacemaker neurons in the heart ganglion of a stomatopod, *Squilla oratoria*, 908
WEBER, A. The mechanism of the action of caffeine on sarcoplasmic reticulum, 760
— and HERZ, R. The relationship between caffeine contracture of intact muscle and the effect of caffeine on reticulum, 750
WIEDERHIELM, CURT A. Dynamics of transcapillary fluid exchange, 29 s
WOODWARD, DONALD J. Electrical signs of new membrane production during cleavage of *Rana pipiens* eggs, 509

Y

YEH, BILLY K., and HOFFMAN, BRIAN F. The ionic basis of electrical activity in embryonic cardiac muscle, 666

INDEX TO SUBJECTS

A

Acetylcholine receptors, kinetic model for Xylocaine action on, 162
Acids, amino, sugars, hexosamines, sulfhydryl-reacting compounds, and cations, effects on preferential binding of D-glucose to Tris-disrupted brush borders in small intestine, 482
Adenosinetriphosphate, caffeine, quinine, and local anesthetics, calcium-binding properties of sarcoplasmic reticulum as influenced by, 622
— splitting and calcium binding by brain microsomes measured with rapid perfusion method, 111
Adipose tissue, brown, membrane potential, suggested mechanism for regulation of thermogenesis, 925
Amino acids, sugars, hexosamines, sulfhydryl-reacting compounds, and cations, effects on preferential binding of D-glucose to Tris-disrupted brush borders in small intestine, 482
Anesthetic gases and water structure, effect of xenon on tritiated water flux across gut, 876
Anesthetics, local, adenosinetriphosphate, caffeine, and quinine, calcium-binding properties of sarcoplasmic reticulum as influenced by, 622
Antibiotics, polyene, interaction with thin lipid membranes, 300
Aplysia neurons, membrane potential, contribution of electrogenic sodium ion pump, 1
Assay, toad bladder, sensitive hydroosmotic, affinity and intrinsic activity of neurohypophyseal peptides, 465
Axons, squid giant, perfused, sodium movements in, passive fluxes, 240
—, squid, internally dialyzed, sodium fluxes in, 181

B

Bacteriophages, virulent, appearance in lysogenic *Escherichia coli* cultures after prolonged growth in presence of triethylenemelamine, 136
Barnacle, giant, muscle fiber membrane, effect of external and internal hydrogen ion concentration changes on potassium and chlorine conductances in, 773
— muscle fibers, single, intracellular sodium concentration and activity coefficient in, 984
Biochemical perspective of structure and function of plasma membrane, 257 s
— studies on active transport, 279 s
Bladder assay, toad, sensitive hydroosmotic, affinity and intrinsic activity of neurohypophyseal peptides, 465
Blood cells, red. *See* Erythrocytes.
Brain microsomes, rapid perfusion method for measuring adenosinetriphosphate splitting and calcium binding by, 111
Brush borders in small intestine, Tris-disrupted, effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on preferential binding of D-glucose to, 482

C

Caffeine, adenosinetriphosphate, quinine, and local anesthetics, calcium-binding properties of sarcoplasmic reticulum as influenced by, 226
— contracture of intact muscle and caffeine effect on reticulum, relationship, 750
—, mechanism of action on sarcoplasmic reticulum, 760
Calcium accumulation by isolated sarcoplasmic reticulum of skeletal and cardiac muscle, effect of quinidine, 955
— binding and adenosinetriphosphate splitting by brain microsomes measured with rapid perfusion method, 111
Calcium-binding properties of sarcoplasmic reticulum as influenced by adenosinetriphosphate, caffeine, quinine, and local anesthetics, 622
Calcium depletion, effect on tension-independent component of cardiac heat production, 532
— pool in isolated cat heart, correlation of contractile force with, 969

Calcium, role in excitation-contraction coupling of lobster muscle, 88
Calcium-sodium competition, form at frog myoneural junction, 887
Capillary circulation, transcapillary exchange in relation to, 96 s
Cardiac heat production, effect of calcium depletion on tension-independent component of, 532
— muscle, embryonic, ionic basis of electrical activity in, 666
— and skeletal muscle, isolated sarcoplasmic reticulum, effect of quinidine on calcium accumulation by, 955
Cat heart, isolated, correlation of contractile force with calcium pool in, 969
Cell, intracellular sodium concentration and activity coefficient in single barnacle muscle fibers, 984
— membranes and nexuses, tunicate heart, electrical characteristics, 46
— permeability, lytic agents, and monolayer penetrability, 227 s
Cells, blood, red. *See* Erythrocytes.
—, heart, chick, embryonic, isolated in tissue culture singly or in interconnected cell sheets, electrical activity, 643
—, mammalian, mediated nonactive transport and regulation of glucose in, 296 s
—, retinula, of honeybee drone, slow and spike potentials recorded from in response to light, 855
Chlorine and potassium conductances in muscle fiber membrane of giant barnacle, effect of external and internal hydrogen ion concentration changes on, 773
Ciona spermatozoa, effects of viscosity and thiourea on metabolism and motility, 283
Cleavage of *Rana pipiens* eggs, electrical signs of new membrane production during, 509
Conductances, potassium and chlorine, in muscle fiber membrane of giant barnacle, effect of external and internal hydrogen ion concentration changes on, 773
Contractile force, correlation with calcium pool in isolated cat heart, 969
Contraction and ionic exchange in rabbit ventricular myocardium, effects of temperature, relation to control of active state, 682
Contracture, caffeine, of intact muscle, and caffeine effect on reticulum, relationship, 750
Cortisol action on sodium transport in canine erythrocytes, 346
Crayfish stretch receptor, effects of organic cations on generator potential, 363

D

Deuteranomalous fovea, luminosity curve, 738
Dinoflagellate, *Noctiluca*, luminescent, flash-triggering action potential, 258
Drone, honeybee, retinula cells, slow and spike potentials recorded from in response to light, 855

E

Eel electroplaques, spike electrogenesis, analysis with phase plane and impedance measurements, 22
Eggs, *Rana pipiens*, electrical signs of new membrane production during cleavage, 509
Electrogenesis, spike, of eel electroplaques, analysis with phase plane and impedance measurements, 22
Electrogenic sodium ion pump, contribution to membrane potential in *Aplysia* neurons, 1
Electroplaques, eel, spike electrogenesis, analysis with phase plane and impedance measurements, 22
Embryonic cardiac muscle, ionic basis of electrical activity in, 666
— chick heart cells isolated in tissue culture singly or in interconnected cell sheets, electrical activity, 643
Epithelial conduction in hydromedusae, 600
Erythrocyte membrane, viscoelastic properties, structure of model membrane in relation to, 173 s
— suspensions, microrheology, 5 s
Erythrocytes, canine, cortisol action on sodium transport in, 346
—, hydraulic permeability coefficient, effect of osmolality, 941
—, properties of hemoglobin solutions in, 825
Escherichia coli cultures, lysogenic, appearance of virulent bacteriophages in after prolonged growth in presence of triethylenemelamine, 136
Excitation-contraction coupling of lobster muscle, role of calcium, 88
Excitation, nerve, single channel or dual channel mechanism for, 550, 555

Eye, *Limulus*, thermal and spectral sensitivities of discrete slow potentials in, 584

F

Fiber membrane, muscle, of giant barnacle, effect of external and internal hydrogen ion concentration changes on potassium and chlorine conductances in, 773
Fibers, barnacle muscle, single, intracellular sodium concentration and activity coefficient in, 984
—, muscle, single, volume and twitch tension changes in hypertonic solutions, 793
—, muscle, striated, sodium activity coefficient in, 983
Films, interfacial, and monolayers, ion transport through, 209 s
—, soap, dynamic processes in, 113 s
Flagella, mechanocoupling in, effects of viscosity and thiourea on metabolism and motility of *Ciona* spermatozoa, 283
Flash-triggering action potential of luminescent dinoflagellate *Noctiluca*, 258
Fleshfly, labellar sugar receptor, stimulation by mono- and disaccharides, 559
Fovea, deuteranomalous, luminosity curve, 738
—, protanomalous, luminosity curve, 717
Frog myoneural junction, form of sodium-calcium competition at, 887

G

Ganglion, heart, of stomatopod, *Squilla oratoria*, pacemaker neurons, inhibitory synapses on, 908
Gases, anesthetic, and water structure, effect of xenon on tritiated water flux across gut, 876
—, inert, high partial pressures, growth of *Streptococcus faecalis* under high hydrostatic pressure and, 810
Glucose, mediated nonactive transport in mammalian cells and regulation of, 296 s
D-Glucose, preferential binding to Tris-disrupted brush borders in small intestine, effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on, 482
Gut, effect of xenon on tritiated water flux across, 876

H

Heart, cat, isolated, correlation of contractile force with calcium pool in, 969
Heart cell membranes and nexuses, tunicate, electrical characteristics, 46
— cells, chick, embryonic, isolated in tissue culture singly or in interconnected cell sheets, electrical activity, 643
— ganglion of stomatopod, *Squilla oratoria*, pacemaker neurons, inhibitory synapses on, 908
Heat production, cardiac, effect of calcium depletion on tension-independent component of, 532
Hemoglobin solutions in red cells, properties, 825
Hexosamines, sugars, amino acids, sulfhydryl-reacting compounds, and cations, effects on preferential binding of D-glucose to Tris-disrupted brush borders in small intestine, 482
Honeybee drone, retinula cells, slow and spike potentials recorded from in response to light, 855
Hydraulic permeability coefficient of red cells, effect of osmolality on, 941
Hydrogen ion concentration changes, external and internal, effect on potassium and chlorine conductances in muscle fiber membrane of giant barnacle, 773
— ion, influence on membrane potential and ion fluxes of *Nitella*, 60
— and sodium ions, exchange for potassium in *Neurospora*, 424
Hydromedusae, epithelial conduction in, 600
Hydroosmotic toad bladder assay, sensitive, affinity and intrinsic activity of neurohypophyseal peptides, 465
Hydrostatic pressure, high, and high partial pressures of inert gases, growth of *Streptococcus faecalis* under, 810

I

Interfacial films and monolayers, ion transport through, 209 s
— permeation and monolayer, 191 s
Intestine, small, active sugar transport by, effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on preferential binding of D-glucose to Tris-disrupted brush borders in, 482

L

Labellar sugar receptor of fleshfly, stimulation by mono- and disaccharides, 559
Letters to Editor, 550, 553, 555, 983, 984

Lidocaine, alteration of time course of end plate potential by, 144
Light, slow and spike potentials recorded from retinula cells of honeybee drone in response to, 855
Limulus eye, thermal and spectral sensitivities of discrete slow potentials in, 584
Lipid bilayer membranes, permeability to organic solutes, 495
— membranes, black, at bifaces, formation characteristics, optical and some thermodynamic properties, 125 s
— membranes, thin, interaction of polyene antibiotics with, 300
— membranes, thin, permeability and electrical properties, 145 s
Lithium ions, dual effect on sodium efflux in skeletal muscle, 408
Lobster muscle, role of calcium in excitation-contraction coupling of, 88
Luminescent dinoflagellate, *Noctiluca*, flash-triggering action potential, 258
Luminosity curve of deuteranomalous fovea, 738
— curve of protanomalous fovea, 717
Lytic agents, cell permeability, and monolayer penetrability, 227 s

M

Mammalian cells, mediated nonactive transport and regulation of glucose in, 296 s
Mechanocoupling in flagella, effects of viscosity and thiourea on metabolism and motility of *Ciona* spermatozoa, 283
Melamine, triethylene-, appearance of virulent bacteriophages in lysogenic *Escherichia coli* cultures after prolonged growth in presence of, 136
Membrane, model, structure in relation to viscoelastic properties of red cell membrane, 173 s
—, muscle fiber, of giant barnacle, effect of external and internal hydrogen ion concentration changes on potassium and chlorine conductances in, 773
—, plasma, structure and function, biochemical perspective, 257 s
— potential in *Aplysia* neurons, contribution of electrogenic sodium ion pump, 1
— potential and ion fluxes of *Nitella*, influence of hydrogen ion, 60
— potential of brown adipose tissue, suggested mechanism for regulation of thermogenesis, 925
Membrane production, new, electrical signs during cleavage of *Rana pipiens* eggs, 509
Membranes, lipid bilayer, permeability to organic solutes, 495
—, lipid, black, at bifaces, formation characteristics, optical and thermodynamic properties, 125 s
—, lipid, thin, interaction of polyene antibiotics with, 300
—, lipid, thin, permeability and electrical properties, 145 s
—, nerve, single or dual channel in? 553
— and nexuses, tunicate heart cell, electrical characteristics, 46
Metabolism and motility of *Ciona* spermatozoa, effects of viscosity and thiourea on, 283
Microrheology of red blood cell suspensions, 5 s
Microsomes, brain, rapid perfusion method for measuring adenosinetriphosphate splitting and calcium binding by, 111
Monolayer and interfacial permeation, 191 s
— penetrability, lytic agents, and cell permeability, 227 s
Monolayers and interfacial films, ion transport through, 209 s
Motility and metabolism of *Ciona* spermatozoa, effects of viscosity and thiourea, 283
Muscle, cardiac, embryonic, ionic basis of electrical activity in, 666
— fiber membrane of giant barnacle, effect of external and internal hydrogen ion concentration changes on potassium and chlorine conductances in, 773
— fibers, barnacle, single, intracellular sodium concentration and activity coefficient in, 984
— fibers, single, in hypertonic solutions, volume and twitch tension changes, 793
— fibers, striated, sodium activity coefficient in, 983
—, intact, relationship between caffeine contracture and caffeine effect on reticulum, 750
—, lobster, role of calcium in excitation-contraction coupling of, 88
—, skeletal and cardiac, isolated sarcoplasmic reticulum, effect of quinidine on calcium accumulation by, 955
—, skeletal, dual effect of lithium ions on sodium efflux in, 408
—, skeletal, strophanthidin-sensitive com-

ponents of potassium and sodium movements in, as influenced by internal sodium concentration, 389
Myocardium, ventricular, rabbit, effects of temperature upon contraction and ionic exchange in, relation to control of active state, 682
Myoneural junction, frog, form of sodium-calcium competition at, 887

N

Nerve excitation, single channel or dual channel mechanism for, 550, 555
— membranes, single or dual channel in? 553
Neurohypophyseal peptides, affinity and intrinsic activity in sensitive hydroosmotic toad bladder assay, 465
Neurons, *Aplysia*, membrane potential, contribution of electrogenic sodium ion pump, 1
—, pacemaker, in heart ganglion of stomatopod, *Squilla oratoria*, inhibitory synapses on, 908
Neurospora, net potassium uptake in, exchange for sodium and hydrogen ions, 424
Nitella, membrane potential and ion fluxes, influence of hydrogen ion, 60
Noctiluca, luminescent dinoflagellate, flash-triggering action potential, 258

O

Optical and thermodynamic properties and formation characteristics of black lipid membranes at bifaces, 125 s
Organic cations, effects on generator potential of crayfish stretch receptor, 363
— solutes, permeability of lipid bilayer membranes to, 495

P

Peptides, neurohypophyseal, affinity and intrinsic activity in sensitive hydro-osmotic toad bladder assay, 465
Perfused squid giant axons, sodium movements in, passive fluxes, 240
Perfusion method, rapid, adenosinetriphosphate splitting and calcium binding by brain microsomes measured with, 111
Permeability, cell, lytic agents, and monolayer penetrability, 227 s
Permeability coefficient, hydraulic, of red cells, effect of osmolality on, 941
— and electrical properties of thin lipid membranes, 145 s
— of lipid bilayer membranes to organic solutes, 495
Permeation, interfacial, and monolayer, 191 s
Photosynthetic units, 212
Plasma membrane, structure and function, biochemical perspective, 257 s
Polyene antibiotics, interaction with thin lipid membranes, 300
Potassium and chlorine conductances in muscle fiber membrane of giant barnacle, effect of external and internal hydrogen ion concentration changes on, 773
—, net uptake in *Neurospora*, exchange for sodium and hydrogen ions, 424
— and sodium movements in skeletal muscle, strophanthidin-sensitive components as influenced by internal sodium concentration, 389
1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on preferential binding of D-glucose to brush borders in small intestine disrupted by, 482
Protanomalous fovea, luminosity curve, 717
Pump, electrogenic sodium ion, contribution to membrane potential in *Aplysia* neurons, 1

Q

Quinidine, effect on calcium accumulation by isolated sarcoplasmic reticulum of skeletal and cardiac muscle, 955
Quinine, adenosinetriphosphate, caffeine, and local anesthetics, calcium-binding properties of sarcoplasmic reticulum as influenced by, 622

R

Rana pipiens eggs, electrical signs of new membrane production during cleavage, 509
Reticulum, relationship between caffeine contracture of intact muscle and caffeine effect on, 750
—, sarcoplasmic, calcium-binding properties as influenced by adenosinetriphos-

phate, caffeine, quinine, and local anesthetics, 622
Reticulum, sarcoplasmic, isolated, of skeletal and cardiac muscle, effect of quinidine on calcium accumulation by, 955
—, sarcoplasmic, mechanism of caffeine action on, 760
Retinula cells of honeybee drone, slow and spike potentials recorded from in response to light, 855
Rheology, micro-, of red blood cell suspensions, 5 s

S

Saccharides, mono- and di-, stimulation of labellar sugar receptor of fleshfly by, 559
Sarcoplasmic reticulum, calcium-binding properties as influenced by adenosinetriphosphate, caffeine, quinine, and local anesthetics, 622
— reticulum, isolated, of skeletal and cardiac muscle, effect of quinidine on calcium accumulation by, 955
— reticulum, mechanism of caffeine action on, 760
Sensitivities, thermal and spectral, of discrete slow potentials in *Limulus* eye, 584
Skeletal and cardiac muscle, isolated sarcoplasmic reticulum, effect of quinidine on calcium accumulation by, 955
— muscle, dual effect of lithium ions on sodium efflux in, 408
— muscle, strophanthidin-sensitive components of potassium and sodium movements in, as influenced by internal sodium concentration, 389
Soap films, dynamic processes in, 113 s
Sodium activity coefficient in striated muscle fibers, 983
Sodium-calcium competition, form at frog myoneural junction, 887
Sodium concentration, intracellular, and activity coefficient in single barnacle muscle fibers, 984
— efflux in skeletal muscle, dual effect of lithium ions on, 408
— fluxes in internally dialyzed squid axons, 181
— and hydrogen ions, exchange for potassium in *Neurospora*, 424
— ion pump, electrogenic, contribution to membrane potential in *Aplysia* neurons, 1
Sodium movements in perfused squid giant axons, passive fluxes, 240
— and potassium movements in skeletal muscle, strophanthidin-sensitive components as influenced by internal sodium concentration, 389
— transport in canine erythrocytes, cortisol action on, 346
Spectral and thermal sensitivities of discrete slow potentials in *Limulus* eye, 584
Spermatozoa, *Ciona*, effects of viscosity and thiourea on metabolism and motility, 283
Squid axons, internally dialyzed, sodium fluxes in, 181
— giant axons, perfused, sodium movements, passive fluxes, 240
— giant synapse, relationship between pre- and postsynaptic potentials in, 326
Squilla oratoria, heart ganglion, inhibitory synapses on pacemaker neurons in, 908
Stimulation of labellar sugar receptor of fleshfly by mono- and disaccharides, 559
Stomatopod, *Squilla oratoria*, heart ganglion, inhibitory synapses on pacemaker neurons in, 908
Streptococcus faecalis, growth under high hydrostatic pressure and high partial pressures of inert gases, 810
Striated muscle fibers, sodium activity coefficient in, 983
Strophanthidin-sensitive components of potassium and sodium movements in skeletal muscle as influenced by internal sodium concentration, 389
Sugar receptor, labellar, of fleshfly, stimulation by mono- and disaccharides, 559
— transport, active, by small intestine, effects of sugars, amino acids, hexosamines, sulfhydryl-reacting compounds, and cations on preferential binding of D-glucose to Tris-disrupted brush borders, 482
Sulfhydryl-reacting compounds, sugars, amino acids, hexosamines, and cations, effects on preferential binding of D-glucose to Tris-disrupted brush borders in small intestine, 482
Synapse, squid giant, relationship between pre- and postsynaptic potentials in, 326
Synapses, inhibitory, on pacemaker neurons

in heart ganglion of stomatopod, *Squilla oratoria*, 908

T

Taste changes in vitamin A deficiency, 444
Tension-independent component of cardiac heat production, effect of calcium depletion on, 532
Tension, twitch, and volume changes in single muscle fibers in hypertonic solutions, 793
Thermal and spectral sensitivities of discrete slow potentials in *Limulus* eye, 584
Thermodynamic and optical properties and formation characteristics of black lipid membranes at bifaces, 125 s
Thermogenesis, regulation, suggested mechanism for, membrane potential of brown adipose tissue, 925
Thiourea and viscosity, effects on metabolism and motility of *Ciona* spermatozoa, 283
Tissue, adipose, brown, membrane potential, suggested mechanism for regulation of thermogenesis, 925
— culture, electrical activity of embryonic chick heart cells isolated singly or in interconnected cell sheets in, 643
Toad bladder assay, sensitive hydroosmotic, affinity and intrinsic activity of neurohypophyseal peptides, 465
Transcapillary exchange in relation to capillary circulation, 96 s
— exchanges, ultrastructural basis of, 64 s
— fluid exchange, dynamics, 29 s
Triethylenemelamine, appearance of virulent bacteriophages in lysogenic *E. coli* cultures after prolonged growth in presence of, 136
Triphosphate, adenosine-, caffeine, quinine, and local anesthetics, calcium-binding properties of sarcoplasmic reticulum as influenced by, 622
—, adenosine-, splitting and calcium binding by brain microsomes measured with rapid perfusion method, 111
Tris. *See* 1, 3-Propanediol, 2-amino-2-(hydroxymethyl)-.
Tunicate heart cell membranes and nexuses, electrical characteristics, 46
Twitch tension and volume changes in single muscle fibers in hypertonic solutions, 793

V

Ventricular myocardium, rabbit, effects of temperature upon contraction and ionic exchange in, relation to control of active state, 682
Viscoelastic properties of red cell membrane, structure of model membrane in relation to, 173 s
Viscosity and thiourea, effects on metabolism and motility of *Ciona* spermatozoa, 283
Vitamin A deficiency, taste changes in, 444

W

Water structure and anesthetic gases, effect of xenon on tritiated water flux across gut, 876

X

Xenon, effect on tritiated water flux across gut, 876
Xylocaine action on acetylcholine receptors, kinetic model, 162
— and derivatives, alteration of time course of end plate potential by, 144

· 1968

quinine,
-binding
ulum as
622
m bind-
ed with
111
o-2-(hy-

nexuses,
46
nges in
ic solu-
793

ffects of
nd ionic
of active
682
mbrane,
relation
173 s
metabo-
natozoa,
283
nges in,
444

es, effect
x across
876

ix across
876
eceptors,
162
ne course
144